

AMENDMENT UNDER 37 C.F.R. § 1.116
Application Serial No. 10/665,149
Attorney Docket No. Q77106

REMARKS

Upon entry of the present Amendment, claims 1-8, 38, 41-42 and 44-45 are all the claims pending in the application. Claims 1 and 38 are presently amended to incorporate the subject matter of claims 47 and 48, respectively. Claims 47 and 48 are cancelled without prejudice or disclaimer. Further, claims 41 and 42 are amended so as to depend from claims 1 and 38. As the claims have merely been amended to incorporate subject matter from dependent claims, in the case of claims 1 and 38, and to rewrite independent claims in dependent form, as with claims 41 and 42, no new issues are believed to be raised which would necessitate further search and consideration by the Examiner. Accordingly, entry and consideration of the present Amendment is respectfully requested.

In the Office Action, claims 47 and 48 have been objected to for informalities, claims 1-3, 5, 38, 41, 42, 47 and 48 have been rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by Takahashi (U.S. Patent No. 6,419,336), Claim 4 has been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Takahashi in view of Murayama et al. (U.S. Patent No. 6,130,700, hereinafter "Murayama"), and claims 6-8, 44 and 45 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Takahashi in view of Kubo (U.S. Patent No. 6,257,688). The outstanding objections and rejections are addressed below.

Claim Objections

The Examiner objected to claims 47 and 48 for informalities. Applicant submits that this ground of objection is moot in view of the cancellation of these claims without prejudice or disclaimer.

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Claim Rejections - 35 U.S.C. § 102

Claims 1-3, 5, 38, 41, 42, 47 and 48 stand rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by Takahashi. This ground of rejection is traversed.

With respect to independent claims 1 and 38, Applicant respectfully submits that Takahashi cannot properly be relied upon to teach or suggest all the claim limitations, *at least* for the following reasons. In this regard, Applicant notes that claims 1 and 38 respectively define an ink jet recording apparatus comprising, *inter alia*, a data developer for developing print data into multi-bit jetting data; a drive signal generator for generating a *drive signal* including a plurality of *drive pulses*, on every unit print cycle; a translator for translating the multi-bit jetting data into pulse select information associated with the respective *drive pulses*; a drive pulse supplier for *selectively supplying at least one of the drive pulses* to the pressure generating element in accordance with the pulse select information to drive the pressure generating element. Further, claims 1 and 38 recite a basic recording mode, a high resolution recording mode, and a mode selector for selecting one of plural recording modes including the basic recording mode and the high-resolution recording mode. In addition, claims 1 and 38 are presently amended to recite the subject matter of claims 47 and 48, respectively, which recite “the *drive signal* is commonly used in the respective recording modes.”

Thus, claims 1 and 38 clearly require that the drive signal, which is generated by the drive signal generator so as to include drive pulses on every unit print cycle, is commonly used in the respective (i.e., basic and high-resolution) recording modes. As demonstrated below, Takahashi clearly fails to suggest at least this feature. For instance, the Examiner asserts that the

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drive signals 1T and 0.5T shown in Figures 5A and 5B of Takahashi are commonly used in the different recording modes. *See* Office Action at page 5. However, the alleged “drive signals” 1T and 0.5T cannot properly be identified with the claimed drive signal. Rather 1T and 0.5T are simply pulses. *See* Takahashi at col. 8, lines 26-53.

For example, Takahashi teaches that the drive waveforms for the normal and first and second high-resolution mode are clearly different, as is plainly evident from Figures 5A-5C, which shows the distances between pulses and the widths of the pulses for each of the resolution modes. Further, the individual drive pulses cannot of Takahashi’s waveform cannot properly be interpreted as a “drive signal”, because claims 1 and 38 clearly define the drive signal as “including a plurality of drive pulses” on every unit print cycle. Conversely, the pulses 1.0T and 0.5T merely represent to pulse widths which are common to both the normal resolution and the first high-resolution recording modes of Takahashi.

However, the waveform or drive signal of each of these two recording modes are clearly different, as shown by the varying pulse widths, and the distances between the pulses in Takahashi’s normal and first high-resolution recording modes. Thus, the Examiner is improperly relying on individual pulse widths which are clearly provided in different waveforms as a “common drive signal” for every unit print cycle. However, as discussed above, each of the *entire* signals shown in Figures 5A to 5C of Takahashi must be regarded as “drive signal” for each unit print cycle, not disembodied pulses which are taken out of context of the different waveforms. Thus, Applicant submits that the Examiner assertion that Takahashi discloses the

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feature of “the drive signal is commonly used in the respective recording modes” is improper, and Takahashi fails to teach all the limitations of claims 1 and 38.

Applicant further submits that Takahashi fails to show the feature of “at least one of the drive pulses is selectively applied by the drive supplier in accordance with the pulse select information”, as defined by claims 1 and 38. In addressing this limitation, the Examiner points to input terminals 187 and 188 of Takahashi. *See* Office Action at page 3. However, In Takahashi, assuming the drive signals shown in Figures 5A to 5C are stored in the storage area 214B and one of the drive signals is selectively supplied to the pressure generating element in accordance with the Examiner’s assertion, then one of the drive signals is selectively supplied. In other words, at least one of the pulses included in one drive signal cannot be selectively supplied, but the entire drive signal is entirely supplied. There is absolutely no basis for concluding that individual pulses within the waveforms are “selectively supplied” in Takahashi. To the contrary, the *entire waveform* of the respective recording mode would necessarily be supplied, and therefore all pulses within the waveform, as shown in Figs. 5A to 5C, would be supplied.

At least for the foregoing reasons, Applicant submits that Takahashi cannot properly be relied upon to teach or suggest all the limitations of claims 1 and 38. Accordingly, reconsideration and withdrawal of the rejection of these claims is requested.

Further, with respect to claim 38, Applicant submits that Takahashi fails to teach or suggest at least the feature of “the number of gradation levels that can be recorded in the basic recording mode is larger than the number of gradation levels that can be recorded in the high-

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resolution recording mode”, as defined by claim 38. In the grounds of rejection, the he Examiner alleges that col. 9, lines 61-63 of Takahashi teaches this limitation. *See* Office Action at page 4. Applicant notes that this passage merely states: “In the normal resolution mode, three or more ink droplets might, in place of two, be ejected for on dot. In this case as well, it is possible to form a thicker image.” *See* Takahashi at col. 9, lines 61-63. However, even if the number of ejection pulses contained in the drive signal is increased along with the Examiner’s assertion, the number of gradation levels *cannot be increased*.

As discussed above, at least one of the drive pulses cannot be selectively supplied to the pressure generating element. Rather, the *entire drive signal* is supplied. The number of gradation levels that can be recorded in each of the recording modes shown in Figures 5A and 5C of Takahashi is simply *two* (i.e., record or non-record). By increasing the number of drive pulses contained in the drive signal, what is increased is the optical density of a recorded dot due to the number of ejections performed in the unit ejection operation. This is represented by the term “thicker image” in Takahashi. Thus, the number of gradation levels in Takahashi does not change in the normal resolution mode and the high-resolution modes, and Takahashi cannot properly be interpreted as teaching the feature of “the number of gradation levels that can be recorded in the basic recording mode is larger than the number of gradation levels that can be recorded in the high-resolution recording mode”.

In view of the foregoing, claims 1 and 38 are believed to be allowable *at least* for the reasons discussed above. Further, dependent claims 2-8, 41-42 and 44-45 are believed to be

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allowable at least by virtue of depending from claims 1 and 38. Accordingly, allowance of claims 1-8, 38, 41-42 and 44-45 is requested.

Claim Rejections - 35 U.S.C. § 103

Claim 4 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Takahashi in view of Murayama. Without commenting substantively on the grounds of rejection, Applicant submits that claim 4 is allowable at least by virtue of depending from claim 1.

Claims 6-8, 44 and 45 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Takahashi in view of Kubo. Without commenting substantively on the grounds of rejection, Applicant submits that claims 6-8, 44 and 45 are allowable at least by virtue of depending from claims 1 and 38, respectively.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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Respectfully submitted,



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